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(43) Date of application publication: 20.07.90	(72) Inventor: KONDO HIROKI TANIGUCHI YASURO UEKI MITSUO KOBORI KEIICHI
(84) Designated contracting states:	(74) Representative:

**(54) SINTERED ALLOY
HAVING HIGH HARDNESS
AND HIGH TOUGHNESS****(57) Abstract:**

PURPOSE: To obtain a sintered alloy for cutting tool excellent in hardness and toughness by subjecting a powder mixture which is composed principally of WC and in which powder of hard material, such as the carbides, carbonitrides, of specific metals, and a powder of Co or Ni as binding metal for sintering are mixed in specific proportions to compacting and then to sintering.

CONSTITUTION: A powder mixture which consists of 3-10vol.% of pulverized powder of cubic compound with high hardness consisting of an least one kind among hard compounds, e.g. the carbides, carbonitrides, etc., of the groups IVa, Va, and VIa metal elements of the periodic table, such as Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W and mutual solid solutions thereof, 78-

89vol.% of WC powder, and 8-12vol.% of powder of Co or Ni as binding material at the time of forming sintered compact is thoroughly mixed and compacted in a metal mold. The resulting green compact is sintered in vacuum, by which the sintered alloy having $\geq 10.3 \text{ MN}\cdot\text{m}^{-3/2}$ fracture toughness value and ≥ 420 micro-Vickers hardness at 1000°C and suitable for cutting tool material can be manufactured.

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Title: **JP2185941A2: SINTERED ALLOY HAVING HIGH HARDNESS AND H TOUGHNESS**

Country: **JP Japan**

Kind: **A**

Inventor: **KONDO HIROKI;
TANIGUCHI YASURO;
UEKI MITSUO;
KOBORI KEIICHI;**

Assignee: **TOSHIBA TUNGALOY CO LTD**
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Number:

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Abstract:

PURPOSE: To obtain a sintered alloy for cutting tool excellent in hardness and toughness by subjecting a powder mixture which is composed principally of WC and in which powder of hard material, such as the carbides, carbonitrides, of specific metals; and a powder of Co or Ni as binding metal for sintering are mixed in specific proportions to compacting and then to sintering.

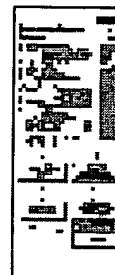
CONSTITUTION: A powder mixture which consists of 3-10vol.% of pulverized powder of cubic compound with high hardness consisting of an least one kind among hard compounds, e.g. the carbides, carbonitrides, etc., of the groups IVa, Va, and VIa metal elements of the periodic table, such as Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, and W and mutual solid solutions thereof, 78-89vol.% of WC powder, and 8-12vol.% of powder of Co or Ni as binding material at the time of forming sintered compact is thoroughly mixed and compacted in a metal mold. The resulting green compact is sintered in vacuum, by which the sintered alloy having $\geq 10.3 \text{ MN} \cdot \text{m}^{-3/2}$ fracture toughness value and ≥ 420 micro-Vickers hardness at 1000°C and suitable for cutting tool material can be manufactured.

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